

value close to zero) indicates that the model explains the variation in the data poorly. By virtue of its higher adjusted R-squared value (0.78 compared to 0.50), the linear-logarithmic specification fits NFL Network contract data better than the linear model.⁹⁷

73. The model indicates that several factors collectively determine the price MVPDs pay for carriage of NFL Network programming. Table 10 presents the parameter estimates and related measures of statistical significance yielded by this analysis.

TABLE 10: OLS REGRESSION RESULTS

Variable	Coefficient	Std. Error	T-Statistic	P-Value
Ln(Subscribers)				
Contract Year				
Package				
MFN				
High Penetration				
Duration				
Y2005				
Y2006				
Y2007				
Constant				

Note: N = 39, adjusted R-squared = 0.95.

As Table 10 indicates, *Contract Year*, *Package*, *MFN*, *High Penetration*, and *Y2005* variables are statistically significant factors that affect the price that other (non-Comcast) MVPDs pay for carriage of NFL Network programming.⁹⁸ Despite the lack of statistical significance of the subscriber variable, I include this factor in my model because Comcast would likely argue that it deserves a lower price due to its size.⁹⁹ The model does a nice job explaining the variation in

97. Note that my plots and R-squared statistics are based on univariate regressions where the Net Effective Rate is a function of either (1) total MVPD NFL Network subscribers (the linear model) or (2) the natural log of the total MVPD NFL Network subscribers (the linear-logarithmic model).

98. Note that I judge statistical significance at the 10 percent level. Only five variables have p-values less than 0.1 (and are thus statistically significant at the 10 percent level); furthermore, two variables have a p-value of less than 0.01, meaning that they are also statistically significant at the 1 percent level.

99. I have, for example, evaluated the effect of various specification changes such as adding discrete variables for each MVPD. These changes generally result in predictions that are either (1) consistent with the results in Tables 10 and 11 or (2) produce significantly higher estimates of the price Comcast should pay for carriage of the

prices above and beyond the mean (simple average) price, with an adjusted R-squared value of 0.95.

74. I can apply the model parameters to Comcast's characteristics to determine the fair-market value that, absent the challenged conduct, Comcast would pay to carry NFL Network on its Expanded Basic tier. Table 11 presents the results for Comcast's Expanded Basic tier of service.¹⁰⁰

TABLE 11: PREDICTED COMCAST NET EFFECTIVE RATE ABSENT DISCRIMINATION FOR 2008

Tier	Net Effective Rate	95% Confidence Interval	
		Upper	Lower
Expanded Basic			

Because the predicted price is based on the rate that other MVPDs have voluntarily agreed to pay for carriage of NFL Network programming, this prediction represents a reasonable measure of the fair-market value that Comcast would have paid NFL Network absent Comcast's challenged conduct. Thus, this model predicts that Comcast would pay a NER of per subscriber per month to carry NFL Network on its Expanded Basic tier in 2008. In keeping with standard statistical approaches, the prediction model also provides a range of possible Comcast NER values. This "confidence interval" demonstrates that the appropriate NER that Comcast would pay for carriage of NFL Network programming on its Expanded Basic tier in 2008 is almost certainly between and per subscriber per month.¹⁰¹ The model predicts

NFL Network on its Expanded Basic tier. I have also evaluated a fixed effects model, which produces a confidence range that includes the prediction I present in Table 11. The fixed effects model considers only 32 observations from the sample (in part due to the nature of the sample) and thus does not provide the same predictive power that model [1] provides when estimated using OLS.

100. The predicted prices are based on the following parameter values for Comcast in 2008:

101. A confidence interval is a statistically derived range that provides a measure of the reliability of a particular point estimate. In applied economics, a 95 percent confidence interval is considered to have a very high degree of reliability.

that the parties would not likely agree to any value above or below this range in an arms-length transaction absent the challenged conduct.

75. To project the fair-market value of carriage of NFL Network on Comcast's Expanded Basic tier for the years 2009-12, I apply the subscriber-weighted year-over-year (YoY) growth rate of the NERs for the MVPDs in my sample that have contractual rates for any year between 2009 and 2012 and that, like Comcast, carry the eight-game package.¹⁰² Table 12 shows the average annual NERs used to calculate the projected Comcast rate for the period 2009-2012.

TABLE 12: SELECT MVPD ANNUAL NERs 2009-2012

2008
2009
2010
2011
2012

Source: NFL Network contracts; Empiris calculations.

Note that the MVPDs listed in Table 12 have substantially different numbers of NFL Network subscribers. To account for this variation when I calculate the annual YoY NER growth rate, I weight each MVPD's NERs by its 2008 NFL Network subscribership. I calculate the average subscriber-weighted year-over-year change by selecting the appropriate sample for each year. Thus, for example, the 2009 year-over-year NER growth rate is calculated as the subscriber-weighted change in NERs for each MVPD in Table 12 because each MVPD has a carriage contract for both 2008 and 2009. In contrast, the YoY NER growth rate for 2011 is calculated as the subscriber-weighted average increase from 2010 to 2011. This value can only be calculated

¹⁰².

using data for the MVPDs that have an established NER for carrying eight-game package programming in both years. Table 13 presents my estimated year-over-year NER growth rates and projects the appropriate Comcast rate for each year from 2009-2012.

TABLE 13: PROJECTED COMCAST NERS, 2008-2012	
	Projected Comcast NER
Year-over-Year (YoY) Growth Rate	
2008	
2009	
2010	
2011	
2012	

Note: 2008 is the base year; thus the first computed growth rate is that from 2008 to 2009.

Table 13 can be used to extend the predicted rate out to 2012.

C. The Reliability of the Fair-Market Value Range Derived from Analysis of the Fair-Market Rates Paid by Other MVPDs Is Confirmed by Comcast's Actual Contract Rate and by Internal Comcast Valuations

76. Comcast valuations support the reliability of my estimate of the fair-market value of NFL Network programming carried on Comcast's Expanded Basic tier. First, my estimate is supported by the price Comcast actually agreed to pay pursuant to the affiliation agreement.

. I examine each valuation below.

1. The Price Estimate Is Confirmed by Comcast's Actual Agreement for Carriage of NFL Network Programming

77. As noted above, the results of the analysis above are corroborated by the contract that currently governs Comcast's carriage of NFL Network programming.

78. The existing contract informs the per subscriber per month rates that Comcast committed to paying NFL Network for all of NFL Network's programming, including the regular-season NFL games. As noted above,

rate. Table 14 summarizes the
that Comcast committed
to pay :

103.

104.

105.

106.

TABLE 14: 2008 COMCAST AFFILIATE RATES AS STIPULATED BY THE NFL-COMCAST AGREEMENT

Sources:

Notes: *

** Information on Comcast's subscriber counts is not publicly available. Comcast's 2008 Expanded Basic subscribers are derived from Internal NFL Network documents (so-called "remittance reports") for 2007. Because such 2008 data were unavailable, I assume that Comcast's Expanded Basic subscribership grew at the same annual rate between June 2007 and 2008 as it did between September 2006 and June 2007. Comcast's 2008 D2 subscribers are based on an estimate provided by Frank Hawkins. See Declaration of Frank Hawkins, May 2, 2008, ¶ 4 ("My understanding is that the "D2" tier is available to approximately 8.6 million Comcast subscribers who receive digital television service.").

*** The "Base" Fee is equal to the adjusted base payment per month divided by the total in-tier subscribers.

†

As Table 14 demonstrates, Comcast committed to pay

79. As noted in Section II.A, the NER is the most comprehensive measure of the carriage fee paid by an MVPD to NFL Network. The Affiliation Agreement also informs the NER that Comcast would have paid for carriage of NFL Network programming on its Expanded Basic or D2 tiers.

Table 15 presents the NER that Comcast would pay for carriage of NFL Network programming under the existing Affiliation Agreement.

TABLE 15: 2008 COMCAST NERS AS STIPULATED BY THE AFFILIATION AGREEMENT

Source: Internal NFL Network Documents; Empiris Calculations.

Note: Numbers may not sum due to rounding.

80. Comcast and NFL Network had thus agreed to a contract, with NERs as set out in Table 15, *before* Comcast initiated the challenged conduct of placing NFL Network on a tier less-penetrated than the tier on which Comcast placed its affiliated sports networks (Versus/OLN, and the Golf Channel). (As noted earlier, Comcast carries both Versus and the Golf Channel on its Expanded Basic tier.).

2. The Price Estimate Is Consistent With Valuations Reflected in Comcast's Internal Documents

81. Internal Comcast analyses also corroborate the predicted price that Comcast should pay for carriage of the NFL Network programming according to my regression model.

CONCLUSION

82. Comcast discriminated against NFL Network on the basis of affiliation by placing it on a less-penetrated tier than Comcast's affiliated national sports networks, the Golf Channel and Versus. Comcast did so even though ratings data show that NFL Network is more widely watched—and thus more popular—than Comcast's affiliated networks. This analysis demonstrates that, whether for “total day,” “prime time,” or for particular programs, NFL Network is more popular than either of the Comcast-affiliated national sports networks. My analysis also indicates that NFL programming enjoys substantial “out-of-market” popularity in cities other than those of the competing teams. These findings refute any suggestion that Comcast's refusal to carry NFL Network on Comcast's Expanded Basic tier was justified based on relative popularity.

83. An analysis of what comparable MVPDs pay for carriage of NFL Network programming indicates that the fair-market value of carriage of NFL Network programming on Comcast's Expanded Basic tier in 2008 is approximately [REDACTED] and almost certainly between [REDACTED] and [REDACTED]. This prediction is corroborated by what Comcast actually agreed to pay NFL Network if Comcast carried the network on [REDACTED]

107.

See also Table 15, *supra*.

These findings further refute any suggestion that Comcast's decision to carry NFL Network on its premium sports tier was justified by cost concerns; the prices also indicate the appropriate price for carriage that should be ordered by the FCC.

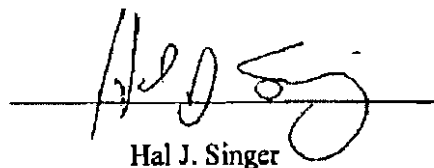
84. Using the year-over-year average growth rate of the NERs of all MVPDs in my sample that carry equivalent programming, I project Comcast's rate for the period 2009-12. I estimate that Comcast should pay an NER ranging from per subscriber per month in 2008 to per subscriber per month in 2012 for carriage of NFL Network on Comcast's Expanded Basic tier.

* * *

I reserve the right to supplement my above-described opinions based on any documents (including but not limited to expert reports and documents responsive to Enterprises' document requests) produced by Comcast that were received, or will be received, too late to be analyzed in time for this report.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.



Hal J. Singer

March 6, 2009

EMPIRIS, L.L.C.

APPENDIX 1: CURRICULUM VITAE

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EDUCATION

THE JOHNS HOPKINS UNIVERSITY, Ph.D., 1999; M.A. (Economics), 1996.

TULANE UNIVERSITY, B.S. *magna cum laude* (Economics), 1994. Dean's Honor Scholar (full academic scholarship). Senior Scholar Prize in Economics, 1994.

CURRENT EMPLOYMENT

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and President, 2008-present.

EMPLOYMENT HISTORY

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President, 2004-2008. Senior Vice President, 1999-2004.

LECG, INC., WASHINGTON, D.C.: Senior Economist, 1998-99.

U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, WASHINGTON, D.C.: Staff Economist, 1997-98.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT, BALTIMORE: Teaching Assistant, 1996-98.

AUTHORED BOOKS AND BOOK CHAPTERS

Valuing Life Settlements as a Real Option, co-authored with Joseph R. Mason, in *LONGEVITY TRADING AND LIFE SETTLEMENTS* (Vishaal Bhuyan ed., John Wiley & Sons 2009).

An Antitrust Analysis of the World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services, co-authored with J. Gregory Sidak, in *HANDBOOK OF TRANS-ATLANTIC ANTITRUST* (Philip Marsden, ed. Edward Elgar 2006).

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17. *The Empirical Case Against Asymmetric Regulation of Broadband Internet Access*, 17 BERKELEY TECHNOLOGY LAW JOURNAL 954 (2002), co-authored with Robert W. Crandall and J. Gregory Sidak.
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1. Economic Effects of Tax Incentives for Broadband Infrastructure Deployment (prepared for the Fiber to the Home Council), co-authored with Jeffrey Eisenach and Jeffrey West (Dec. 23, 2008).
2. The Effect of Brokered Deposits and Asset Growth on the Likelihood of Failure (prepared for Morgan Stanley, Citigroup, and UBS), co-authored with Joseph Mason and Jeffrey West (Dec. 17, 2008).
3. Estimating the Benefits and Costs of M2Z's Proposal: Reply to Wilkie's *Spectrum Auctions Are Not A Panacea* (prepared for CTIA), co-authored with Robert W. Hahn, Allan T. Ingraham and J. Gregory Sidak (July 23, 2008).
4. Is Greater Price Transparency Needed in The Medical Device Industry? (prepared for Advanced Medical Technology Association), co-authored with Robert W. Hahn (Nov. 30, 2007).
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6. Improving Public Safety Communications: An Analysis of Alternative Approaches (prepared for the Consumer Electronics Association and the High Tech DTV Coalition), co-authored with Peter Cramton, Thomas S. Dombrowsky, Jr., Jeffrey A. Eisenach, and Allan Ingraham (Feb. 6, 2007).
7. The Budgetary Impact of Eliminating the GPOs' Safe Harbor Exemption from the Anti-Kickback Statute of the Social Security Act (prepared for the Medical Device Manufacturers Association) (Dec. 20, 2005).
8. Reply to "The Life Settlements Market: An Actuarial Perspective on Consumer Economic Value" (prepared for Coventry First), co-authored with Eric Stallard (Nov. 15, 2005).
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11. Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas? (prepared for Harvest Partners), co-authored with Thomas G. Thibodeau and Allan T. Ingraham (July 16, 2004).
12. An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7 (prepared for BellSouth), co-authored with Robert Crandall (Jan. 6, 2004).
13. Competition in Broadband Provision and Implications for Regulatory Policy (prepared for the Alcatel, British Telecom, Deutsche Telekom, Ericsson, France Telecom, Siemens, Telefónica de España, and Telecom Italia), co-authored with Dan Maldoom, Richard Marsden, and Gregory Sidak (Oct. 15, 2003).
14. The Effect of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy (prepared for Verizon), co-authored with Robert W. Crandall (Sept. 17, 2003).
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16. Letter Concerning Spectrum Auction 35 to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Peter C. Cramton, Robert W. Crandall, Robert W. Hahn, Robert G. Harris, Jerry A. Hausman, Thomas W. Hazlett, Douglas G. Lichtman, Paul W. MacAvoy, Paul R. Milgrom, Richard Schmalensee, J. Gregory Sidak, Hal J. Singer, Vernon L. Smith, William Taylor, and David J. Teece (Aug. 16, 2002).

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1. *What Does an Economist Have to Say About the Calculation of Reasonable Royalties?*, presented at Law Seminars International Standard Setting and Patent Pools Conference, co-authored with Kyle Smith (Sept. 2008).
2. *Irrational Expectations: Can a Regulator Credibly Commit to Removing an Unbundling Obligation?*, AEI-Brookings Joint Center Related Publication No. 07-28, co-authored with Jeffrey A. Eisenach (Dec. 2007).
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1. *Markets and Regulation: How Do We Best Serve Customers?*, Wireless U. Communications Policy Seminar, UNIVERSITY OF FLORIDA PUBLIC UTILITY RESEARCH CENTER, Tampa, FL., Nov. 13, 2008.
2. *The Price Of Medical Technology: Are We Getting What We Pay For?* HEALTH AFFAIRS BRIEFING, Washington, D.C., Nov. 10, 2008.
3. *Standard Setting and Patent Pools*, LAW SEMINARS INTERNATIONAL, Arlington, VA., Oct. 3, 2008.
4. *The Changing Structure of the Telecommunications Industry and the New Role of Regulation*, INTERNATIONAL TELECOMMUNICATIONS SOCIETY BIENNIAL CONFERENCE, Montreal, Canada, June 26, 2008.
5. *The Debate Over Network Management: An Economic Perspective*, AMERICAN ENTERPRISE INSTITUTE CENTER FOR REGULATORY AND MARKET STUDIES, Washington, D.C., Apr. 2, 2008.
6. *Merger Policy in High-Tech Industries*, GEORGE MASON UNIVERSITY SCHOOL OF LAW, Washington, D.C., Feb. 1, 2008.
7. *Telecommunications Symposium*, U.S. DEPARTMENT OF JUSTICE ANITRUST DIVISION, Washington, D.C., Nov. 29, 2007.
8. *Wireless Practice Luncheon*, FEDERAL COMMUNICATIONS BAR ASSOCIATION, Washington, D.C., Nov. 29, 2007.
9. *Association for Computing Machinery's Net Neutrality Symposium*, GEORGE WASHINGTON UNIVERSITY, Washington, D.C., Nov. 12, 2007.
10. *Regulators' AdvanceComm Summit*, NEW YORK LAW SCHOOL, New York, N.Y., Oct. 14, 2007.
11. *Annual Conference*, CAPACITY USA 2007, New York, N.Y., Jun. 26, 2007.
12. *William Pitt Debating Union*, UNIVERSITY OF PITTSBURGH, SCHOOL OF ARTS & SCIENCES, Pittsburgh, PA., Feb. 23, 2007.

13. *Annual Conference*, WIRELESS COMMUNICATIONS ASSOCIATION INTERNATIONAL, Washington, D.C., June 27, 2006.
14. *Annual Conference*, MEDICAL DEVICE MANUFACTURERS ASSOCIATION, Washington, D.C., June 14, 2006.
15. *Annual Conference*, ASSOCIATION FOR ADVANCED LIFE UNDERWRITING, Washington, D.C., May 1, 2006.
16. *Entrepreneur Lecture Series*, LAFAYETTE COLLEGE, Easton, PA., Nov. 14, 2005.

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2. *Foxes in the Henhouse: FCC Regulation through Merger Review*, MILKEN INSTITUTE REVIEW (First Quarter 2008), co-authored with J. Gregory Sidak.
3. *Don't Drink the CAFE Kool-Aid*, WALL STREET JOURNAL, Sept. 6, 2007, at A17, co-authored with Robert W. Crandall.
4. *The Knee-Jerk Reaction: Misunderstanding the XM/Sirius Merger*, WASHINGTON TIMES, Aug. 24, 2007, at A19, co-authored with J. Gregory Sidak.
5. *Net Neutrality: A Radical Form of Non-Discrimination*, REGULATION, Summer 2007.
6. *Telecom Time Warp*, WALL STREET JOURNAL, July 11, 2007, at A15, co-authored with Robert W. Crandall.
7. *Earmarked Airwaves*, WASHINGTON POST, June 27, 2007, at A19, co-authored with Robert W. Hahn.
8. *Not Neutrality*, NATIONAL POST, Mar. 29, 2007, at FP19.
9. *Should ATM Fees Be Regulated?*, NATIONAL POST, Mar. 8, 2007, at FP17, co-authored with Robert W. Crandall.
10. *Life Support for ISPs*, REGULATION, Fall 2005, co-authored with Robert W. Crandall.
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MEMBERSHIPS

American Economics Association

REVIEWER

JOURNAL OF COMPETITION LAW AND ECONOMICS

JOURNAL OF RISK MANAGEMENT AND INSURANCE REVIEW

JOURNAL OF REGULATORY ECONOMICS

MANAGERIAL AND DECISION ECONOMICS

TELECOMMUNICATIONS POLICY

EMPIRIS, L.L.C.

PERSONAL INFORMATION

American citizen, born March 31, 1972. Married to Ingrid Arraut Singer. Two daughters: Alexis and Kayla. Resident of Oakton, Virginia.

February 11, 2009

EMPIRIS, L.L.C.

APPENDIX 2: MATERIALS RELIED UPON

Academic Literature

PHILLIP AREEDA, IX ANTITRUST LAW (Aspen 1991).

Johan Arndt & Julian L. Simon, *Advertising and Economics of Scale: Critical Comments on the Evidence*, 32 J. IND. ECON. 229 (1983).

Wilko Bolt & Alexander F. Tieman, *Social Welfare and Cost Recovery in Two-Sided Markets*, IMF Working Paper WP/05/194 (2005).

ROBERT H. BORK, THE ANTITRUST PARADOX (Free Press 1978).

Dennis W. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak Are Misguided*, 68 ANTITRUST L. J. 659 (2001)

Howard Chang, David S. Evans, & Daniel D. Garcia Swartz, *The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia*, 4 REV. NETWORK ECON. 328 (2005).

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APPENDIX 3: LEAGUE CITY DEFINITIONS

Table 5 examines Nielsen ratings data in “league” and “non-league” cities for two national professional sports leagues, the NFL and the NHL. In each case, the ratings are based on a universe of 56 Nielsen DMA markets. These markets have been classified as either a league city or a non-league city for each sport. Table A1 indicates which of the 56 DMAs are considered league cities. Note that any city in Table A1 that is not indicated as a league city for a particular sport is considered a non-league city for that sport. Also note that a DMA can have more than one team of the same sport, meaning that there are fewer league cities than there are teams. For example, New York City constitutes one DMA with two NFL teams (the Giants and the Jets) and three NHL teams (the Devils, Islanders, and Rangers).

TABLE A1: LEAGUE AND NON-LEAGUE CITY DEFINITIONS		
	NFL Market?	NHL Market?
Albuquerque-Santa Fe		
Atlanta	Yes	Yes
Austin		
Baltimore	Yes	
Birmingham (Ann and Tusc)		
Boston (Manchester)	Yes	Yes
Buffalo	Yes	Yes
Charlotte	Yes	
Chicago	Yes	Yes
Cincinnati	Yes	
Cleveland-Akron (Canton)	Yes	
Columbus, OH		Yes
Dallas-Ft. Worth	Yes	Yes
Dayton		
Denver	Yes	Yes
Detroit	Yes	Yes
Ft. Myers-Naples		
Greensboro-H.Point-W.Salem		
Greenville-Spart-Asheville-And		
Hartford & New Haven		
Houston	Yes	
Indianapolis	Yes	

Jacksonville	Yes	
Kansas City	Yes	
Knoxville		
Las Vegas		
Los Angeles		Yes
Louisville		
Memphis		
Miami-Ft. Lauderdale	Yes	Yes
Milwaukee	Yes	
Minneapolis-St. Paul	Yes	Yes
Nashville	Yes	Yes
New Orleans	Yes	
New York	Yes	Yes
Norfolk-Portsmouth-Newport News		
Oklahoma City		
Orlando-Daytona Beach-Melbourne		
Philadelphia	Yes	Yes
Phoenix (Prescott)	Yes	Yes
Pittsburgh	Yes	Yes
Portland, OR		
Providence-New Bedford		
Raleigh-Durham (Fayetteville)		Yes
Richmond-Petersburg		
Sacramento-Stokton-Modesto		
Salt Lake City		
San Antonio		
San Diego	Yes	
San Francisco-Oakland-San Jose	Yes	Yes
Seattle-Tacoma	Yes	
St. Louis	Yes	Yes
Tampa-St. Pete (Sarasota)	Yes	Yes
Tulsa		
Washington, DC (Hagerstown)	Yes	Yes
West Palm Beach-Ft. Pierce		

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
NFL Enterprises LLC,)	MB Docket No. 08-214
Complainant)	
v.)	File No. CSR-7876-P
Comcast Cable Communications, LLC,)	
Defendant)	
)	

To: Marlene H. Dortch, Secretary
Federal Communications Commission

Attn: Chief Administrative Law Judge Richard L. Sippel

CERTIFICATE OF SERVICE

I, Leah E. Pogoriler, certify that on this 6th day of March, 2009, I caused a true and correct copy of the attached Report of Dr. Hal J. Singer to be served via electronic mail upon:

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